

T02D05 - Electron Configuration Practice

Name

	Electron Configuration (structure)	Shorthand (Noble Gas) Notation
O [Z=8]		
Na [Z=11]		
Al [Z=13]		
Cl [Z=17]		
S [Z=16]		
Ge [Z=32]		
Sr [Z =38]		
Fr [Z=87]		
Nd [Z = 60]		
Ba [Z = 56]		

	Electrons	Electron Configuration (structure)	Shorthand (Noble Gas) Notation
S ⁻² [Z=16]			
Ge ⁺⁴ [Z=32]			
Sr ⁺² [Z =38]			
Fr ⁺¹ [Z=87]			
Zn ⁺² [Z=30]			
P ⁻³ [Z=15]			
O ⁻² [Z=8]			

Nitrogen:

Electron Configuration:	
Orbital Box Diagram:	
1s	2s 2p 3s 3p 4s 3d 4p 5s 4d 5p 6s 4f 5d

The neutral element with 46 protons:

Electron Configuration:	
Orbital Box Diagram:	
s s p s p s d p s d p s f d	

Lead [Z=82]:

1. What is the electron configuration for an atom with $Z = 22$?
- A. $1s^2 2s^2 2p^6 3s^2 3p^6 3d^4$
- B. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 4p^2$
- C. $1s^2 2s^2 2p^6 3s^2 3p^6 3d^2 4p^2$
- D. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^2$
2. What is the total number of p orbitals containing one or more electrons in germanium (atomic number 32)?
- A. 2
- B. 3
- C. 5
- D. 8
3. Which is correct about the element tin (Sn) ($Z = 50$)?

	Number of main energy levels containing electrons	Number of electrons in highest main energy level
A.	4	4
B.	4	14
C.	5	4
D.	5	14

4. A transition metal ion X^{2+} has the electronic configuration $[Ar]3d^9$. What is the atomic number of the element?
- A. 27
- B. 28
- C. 29
- D. 30
5. What is the electron configuration for the copper(I) ion, ($Z = 29$)?
- A. $[Ar]4s^2 3d^9$
- B. $[Ar]4s^1 3d^{10}$
- C. $[Ar]4s^1 3d^9$
- D. $[Ar]3d^{10}$
6. (i) State the full electron configuration for argon.

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(1)

- (ii) Give the formulas of **two** oppositely charged ions which have the same electron configuration as argon.

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(2)

(Total 3 marks)